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STEVEN J. ROCCI
WOODCOCK, WASHBURN, KURTZ, MACKIEWICZ & NORRIS LL
ONE LIBERTY PLACE
46TH FLOOR
PHILADELPHIA, PA 19103

EXAMINER

MEHRA, INDER P

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 10/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/099,742

Applicant(s)

CHANG ET AL.

Examiner

Inder P Mehra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-19, 23-30, 32-33 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 20-22 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. This is in response to amendment dated 8/9/02. Amended claims 1, 3, 13, 15 and 27 have been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 4-6, 13-15, 16-18, 27, 29-30, and 33, are rejected under 35 U.S. C. 103(a) as being unpatentable over **Franaszek et al** (US Patent No.5,729,228), hereinafter Franaszek in view of **Bigham** (US Patent No.5,544,161), and further in view of **Rostoker et al** (US Patent No. 5,872,784), hereinafter, Rostoker.

Regarding claims 1, 3, 13, 15, 27, and 29, Franaszek discloses, in reference to figs. 1, 2 and 3, a method for parallel compression and decompression, refer to col. 2, lines 35-47, comprising:

Franaszek discloses, in reference to fig. 2, col. 2 line 51, the following:

- bitstream separated into blocks (b 1 221, b2 222, b3 223 and b4 224, called components);
- uses compression algorithm (col 1, lines 36-39) and encodes the blocks using compression algorithm (refer to col. 3, lines 25-27 and 62-64);
- in fig. 3, the compressed block is divided into sections by the splitter 330

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- (separating packets from the packetized bitstream);
- illustrating how a previously compressed block 260 is decompressed using parallel decompression, refer to col. 3, lines 16-17 and further, illustrates in fig. 7 parallel decompression and decodes the packets, refer to col. 5, lines 33-45;
- updating the corresponding portions (constructing the plurality of components from the recovered encoded data), refer to col. 5, lines 55-57; and
- consolidates the components via output data combiner 841 in fig. 8 (combining the plurality of components to recover the bitstream).

Franaszek does not disclose expressly, scan lines, as recited by claim 27, a packet comprises header information and encoded data; and combining the packets into a packetized encoded bitstream;

Franaszek in view of Bigham does not disclose expressly encoding components of pixels using compression algorithm;

Bigham discloses digital encoder MPEG-2 118, fig. 2, and transport stream packet (bitstream packet) which consists of header section and payload section and are identified by program identification number (packet comprises header information and encoded data), refer to col. 10, lines 59-64 and col. 11, lines 32-40. Further, Bigham discloses combined ATM bitstream before transport to ATM edge multiplexer 120 or SONET MUX 122, refer to fig. 2 and refer to col. 11, lines 50-53.

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Rostoker discloses encoder estimates motion vectors for each 16x16 macroblock in the picture. Each macroblock consists of a 16-pixel by 16 line section of luminance *component* and two spatially corresponding 8-pixel by 8-line sections, one for each *chrominance component*. Motion vectors, which give the displacement from the stored previous picture, are encoded in the MPEG bitstream.

A person of ordinary skill in the art would have been motivated to employ Rostoker's high speed digital network apparatus and Bigham's video distribution network into Franaszek's parallel Compression and Decompression in order to have packets used for parallel compression and decompression. The suggestion/ motivation to do so would have been obvious to have ATM packets which provide greater flexibility in enabling MPEG-2 encoding. Further, it is obvious to a person of ordinary skill in the art to understand that scan lines inherently include pixel which inherently include components, as recited in specifications, refer to specification page 17 and lines 7-8.

Regarding claims 2, 4, 14 and 16, Franaszek does not disclose bitstream digitized graphics or video frame; and the digitized graphics and video frames for display.

Bigham discloses graphics and video information in digital signals, refer to col. 4, lines 35-40, and col. 23 line 15; and digitized graphics and video for display, (refer to col. 31, lines 414.

A person of ordinary skill in the art would have been motivated to employ Bigham's video distribution network into Franaszek's parallel Compression and Decompression in order to provide video and graphics in digital stream to facilitate parallel compression and

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Decompression. The suggestion/ motivation to do so would have been logical to have ATM packets which provide greater flexibility in enabling MPEG-2 encoding.

Regarding claims 5, 6, 17 and 18, Franaszek discloses encoding the components using Lempel Ziv compression (Lossless compression algorithm), refer to col. 1, lines 35-38.

Regarding claim 30, Franaszek does not disclose expressly pixel as component of each block;56-67

Bigham discloses pixels as part of encoded data1410, refer to fig. 14A and refer to col. 34 lines 36-67;

A person of ordinary skill in the art would have been motivated to employ Bigham's video distribution network into Franaszek's parallel Compression and Decompression in order to provide video and graphics including pixels in digital stream to facilitate parallel compression and Decompression. The suggestion/ motivation to do so would have been logical to have ATM packets which provide greater flexibility in enabling MPEG-2 encoding.

Regarding claim 33, Franaszek discloses, in reference to fig. 11, computer memory 1130, 1140 and 1150 containing uncompressed and compressed format, and computer system with cache memory exchanging messages, sharing data, and memory management , refer to col. 6 lines 56-67 through col. 7 lines 1-16.

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4. Claim 28 is rejected under 35 U.S. C. 103(a) as being unpatentable over **Franaszek et al** (US Patent No.5,729,228), hereinafter Franaszek in view of **Bigham** (US Patent No.5,544,161), and further in view of **Rostoker et al** (US Patent No. 5,872,784), hereinafter, Rostoker and **Kuzma** (US Patent No. 5,389, 965), hereinafter Kuzma.

Regarding claim 28 , Franaszek, Bigham and Rostoker do not disclose expressly lossless compression comprises differential pulse code modulation;

Kuzma discloses explicitly lossless compression comprises differential pulse code modulation, refer to col. 9 lines 21 and 35-37;

A person of ordinary skill in the art would have been motivated to employ Kuzma,s video telephone station having variable image clarity and Bigham's video distribution network and Rostoker's digital video network apparatus into Franaszek's parallel Compression and Decompression in order to combine lossless compression algorithm comprising differential pulse code modulation with the technique of compression and decompression algorithm. The suggestion/ motivation to do so would have been logical to have loss less compression algorithm comprising pulse code modulation.

5. Claims 7, 9-12, 19, 23-26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Franaszek et al** (US Patent No.5,729,228), hereinafter Franaszek in view of **Bigham** (US Patent No. 5,544,161), and further in view of **Rostoker et al** (US Patent No. 5,872,784), hereinafter, Rostoker and **Schwartz et al** (US Patent No. 5,717,394), hereinafter Schwartz.

Regarding claims 7, 10, 19 and 23, Franaszek in view of Bigham, and Rostoker do not disclose expressly constructing packets from the encoded components include both variable length and fixed length packets.

Schwartz discloses both variable length codewords (16 packets,fig. 4), refer to col. 28, lines 51-54, and fixed length packets , refer to col. 28, lines 56-57.

A person of ordinary skill in the art would have been motivated to employ Schwartz's apparatus for encoding and decoding data into Franaszek's parallel Compression and Decompression in order to provide parallel encoding and decoding. The suggestion/ motivation to do so would have been logical to remove bit level manipulation of the data stream and thus increase the speed of processing by parallelization method.

Regarding claims 11, 12, 24 and 25, Franaszek in view of Bigham, and Rostoker do not disclose expressly header information including tag; and distribution of packets to separate decode units on the basis of tag.

Schwartz discloses, in reference to fig. 3, a preface header containing pointers (tag) to the beginning of bit location of each bit stream ,refer to col. 8, lines 21-22; and retrieval of packets from the proper location via proper pointer (tag), refer to col. 8, lines 29-31.

A person of ordinary skill in the art would have been motivated to employ Schwartz's apparatus for encoding and decoding data into Franaszek's parallel Compression and Decompression in order to provide parallel encoding and decoding. The suggestion/ motivation to do so would have been logical to remove bit level manipulation of the data stream and thus

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increase the speed of processing by parallelization method while maintaining efficiency of compression and decompression..

Regarding claim 26, Franaszek in view of Bigham, and Rostoker do not disclose expressly queue to receive packetized encoded data in bitstream .

Schwartz discloses the use of queue to allow ordered data stream, refer to col. 19 lines 59-64.

A person of ordinary skill in the art would have been motivated to employ Schwartz's apparatus for encoding and decoding data into Franaszek's parallel Compression and Decompression in order to provide parallel encoding and decoding. The suggestion/ motivation to do so would have been logical to remove bit level manipulation of the data stream and thus increase the speed of processing by parallelization method while maintaining efficiency of compression and decompression.

Regarding claim 32, Franaszek in view of Bigham, and Rostoker do not do not disclose expressly scan line as HDTV line.

Schwartz discloses HDTV as excellent choice for the system of his invention, refer to col. 56 and lines 25-35;

To a person of ordinary skill in the art, it is obvious to have scan line comprising HDTV line in HDTV system. A person of ordinary skill in the art would have been motivated to employ Schwartz's apparatus for encoding and decoding data into Franaszek's parallel Compression and Decompression in order to provide parallel encoding and decoding. The suggestion/ motivation

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to do so would have been logical to include HDTV system application into video distribution network. It would have been obvious to a person of ordinary skill in the art to use decoding system coupled to compressed image data system in order to provide transformation and sub-sampling portion of HDTV decoder.

Allowable Subject Matter

6. Claims 8-9, 20-22 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed on 8/9/02 with respect to claims 1-33 have been considered but they are not persuasive.

a. In remarks by applicant, refer to page 5, the applicant argues that the office action does not teach or suggest separating pixels into components so that pixel components can be encoded in parallel. In response, examiner states that Franaszek discloses, in reference to fig. 2, col. 2 line 51, the following:

bitstream separated into blocks (b 1 221, b2 222, b3 223 and b4 224, called components); and uses compression algorithm (col 1, lines 36-39) and encodes the blocks using compression algorithm (refer to col. 3, lines 25-27 and 62-64);

Rostoker discloses encoder estimates motion vectors for each 16x16 macroblock in the picture. Each macroblock consists of a 16-pixel by 16 line section of luminance *component* and two spatially corresponding 8-pixel by 8-line sections, one for each *chrominance component*. Motion vectors, which give the displacement from the stored previous picture, are encoded in the MPEG bitstream.

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8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

9. Any enquiry concerning this communication should be directed to Inder Mehra whose telephone number is (703)305-1985. The examiner can be normally reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Seema Rao, can be reached on (703)308-5463. Any enquiry of a general nature of relating to the status of this application or processing should be directed to the Group receptionist whose telephone number is (703)305-4700.

Inder Mehra 10/11/02
Inder Mehra

October 11, 2002

**MELVIN MARCELO
PRIMARY EXAMINER**